COASTAL SBFEP OPERATIONS OF 50,000 m^3 OR LESS — AN ECONOMIC PROFILE

Prepared for:

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BC Ministry of Sustainable Resource Management

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BUILDING BLOCKS FOR ECONOMIC DEVELOPMENT & ANALYSIS

PREFACE

PURPOSE

Building Blocks have been conceived and developed by the Economic Development Branch of the Ministry of Sustainable Resource Management, under the guidance of Nancy South, Manager Economic Analysis, as an analytical tool that supports British Columbia coastal and land and resource use planning and decision-making and economic development initiatives. The Blocks contain concise business and sector information for a broad range of resource-based business types in BC. At this point, there are more than 30 Blocks either complete or in draft form. Several more Blocks have been identified as high priority by planning tables and other client groups. Additional Building Blocks will be developed over time, and some Blocks may be updated. For the most current Building Blocks, please see the Ministry of Sustainable Resource Management website, at: http://srmwww.gov.bc.ca/rmd/ecdev/

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BENEFITS

Building Blocks are expected to provide the following general benefits:

- Increase efficiency and more informed decision-making by providing readily accessible, credible information to planning and economic development processes;
- Improve the consistency of economic information across planning areas;
- Support economic analysis and decision-making that occurs outside formal coastal and land use planning processes; and
- Provide linkages between economic analysis and other social and environmental analytical tools (through identifying resource requirements to support economic activities and general compatibilities with other sectors and values).

LIMITATIONS

Every effort has been made to ensure that the information contained in Building Blocks is accurate and consistent. Approved, credible data sources are the foundation for Building Blocks. All Blocks were reviewed by sponsoring agencies and other experts. However, users are cautioned that information is used at their own risk, and that the authors and sponsors are not liable for any damages. Any conclusions or interpretations by the authors are not intended to represent government policy. Also, note that Building Blocks do not provide site specific information nor do they consider requirements for sustainability (social, community, environmental).

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RECOMMENDED REFERENCE/CITATION

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1.0 OVERVIEW OF ECONOMIC ACTIVITY

1.1 Focus

The subject of this Building Block economic profile is stump to dump timber harvesting on coastal BC[1] provincial Crown land by loggers who acquired harvesting rights through the BC Government's Small Business Forest Enterprise Program (SBFEP). The focus is SBFEP bid sale and bid proposal timber harvests of 50,000 m^3 or less.

1.2 SBFEP

Coastal SBFEP timber sales are generally sold through a competitive bid process that specifies the harvest method to be employed by the successful bidder. The sales are sold on the basis of standing timber being felled, yarded or skidded from stump to roadside or water and transported to point of market sale or manufacturing facility. The successful bidder, by regulation a SBFEP registrant, may or may not be a harvesting operator. Whether an operator or not, the registrant is likely to have the small business harvesting carried out by either a stump to dump or phase contractor.

While this report addresses small to large-scale SBFEP operations, it should be noted that the program is now referred to as the BC Timber Sales program. As of the October 2002 preparation of this Building Block, Ministry of Forests is in the midst of transforming the SBFEP into the BC Timber Sales initiative. The timber sales features of the SBFEP will be retained in its successor, which is scheduled to be fully implemented in April 2003. In Appendix I is an outline of BC Timber Sales.

It is likely that timber sales will increase in average volume in the near future. The term of the sales will likely be shortened and the necessity for operators to utilize the best combination of harvest systems to ensure they meet environmental standards and cost efficiencies to remain competitive will increase.

The elements of the SBFEP are as follows:

- Section 20 category 1 – Competitive price tendering by market loggers who do not own or lease a wood processing facility. These competitive tenders are open to loggers having one year of timber harvesting experience and who pay a $250 annual registration fee.
- Section 20 Category 2 –Competitive price tendering by loggers who do not own or lease a wood processing facility and owners or leasors of timber processing facilities. These competitive tenders are open to Category 1 registrants and owners and leasors of timber processing facilities who pay a $250 annual registration fee.
- Section 21 – Competitive bid tendering by companies that do not own or lease a timber processing plant, but will construct or lease one, if awarded a licence.
- Section 23 – Direct award of harvesting rights by Ministry of Forests.

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[1] Coastal BC is defined as the six forest districts that form the re-aligned Vancouver Forest Region. The Forest Districts are Chilliwack, South Island, Sunshine Coast, Campbell River, Port McNeill and North Coast. Chilliwack Forest District is in the process of absorbing Squamish and Queen Charlotte Islands Forest Districts and Port McNeill is absorbing Mid-Coast Forest District.

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The most recently available statistics, as shown in the following table, indicate that the Vancouver Forest Region (all coastal forest districts but North Coast) had significant portions of SBFEP Cat 1 and 2 registrants but registered lower proportions of BC total sales.

1.3 SBFEP Registrants and Sales (2001/2002)

	Registrants Sales
Area	
	Cat. 1
	Cat. 2
	Cat. 3
	Cat. 1
	Cat. 2
	Cat. 3
	Other
Vancouver Region (#)	
	487
	164
	17
	123
	11
	—
	291
Vancouver Region (%)	
	20.4
	34.0
	41.5
	7.9
	7.6
	0
	23.9
BC total	
	2,392
	483
	41
	1,551
	144
	1
	1,216

Source: Ministry of Forests, Annual Report 2001/2002

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1.4 SBFEP Activity Size

The average timber sale award for the Section 20 and 21 competitions on coastal BC was approximately 11,000 m^3 (based on billed volume), during the three-year, 1999/04/01 to 2002/03/31 period. Total Section 20 and 21 billed volume averaged about 1.7 million m^3 for the same period.

1.5 Areas Where Economic Activity Can Occur

Cut blocks on provincial Crown land in all Forests Districts in areas designated on Ministry of Forests prepared five-year SBFEP plans.

1.6 Marketing

Section 20 Category 1 SBFEP bid award winners sell to BC wood processing mills and log brokers and traders, who are market intermediaries having in-depth knowledge about timber value and supply and demand conditions in BC and log export markets. Examples of log brokers are Probyn Log, Canadian Overseas, A&A Lumber, Tanana Forest Products. There is an Independent Timber Marketing Association, having 18 members.

Section 20 Category 2 SBFEP bid award winners use their SBFEP logs in their timber processing facilities or trade them for logs that can be processed in their wood processing facilities.

Section 21 Category 3 SBFEP bid proposal winners use their SBFEP logs in their timber wood processing facilities or trade them for logs that can be processed in their timber processing facilities.

1.7 Production

Stump-to-dump Operators

Stump-to-dump operators are those logging companies that carry out all phases of the forest timber harvesting process. They will generally have the necessary experience, manpower and equipment resources to complete the timber falling, yarding, loading, trucking and log sorting/booming phases of a total harvest operation. The stump to dump operator may or may not have the associated road building capability, nor would he necessarily have capacity in all specialized harvest methods that might be incidental to the main harvest method(s) employed.

Phase Contractors/Operators

Phase contractors or operators are those that contract with licencees or a SBFEP successful bidder to carry out a specific phase of the timber harvest operation. For coastal operations the phases include the following:

- Falling by hand or mechanical methods
- Yarding, skidding, forwarding
- Loading

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- Trucking (hauling)
- Sorting
- Booming
- Towing

Phase contractors may contract to do either one or a combination of the various phases. Yarding and loading are commonly combined, as are sorting and booming. Generally the smaller the timber sale, the less feasible is the opportunity to employ many phase contractors. Larger volume timber sales increase the feasibility and opportunity for both stump-to-dump and phase contractors to be cost effective approaches to harvest the SBFEP timber.

There are four basic types of timber harvesting systems utilized in coastal BC (1) helicopter logging, (2) cable logging or grapple yarding, (3) feller/buncher, and (4) hoe-chucking or fowarding.

Helicopter Logging

Helicopter logging is an aerial harvesting system that "...lifts the logs directly from the felling site to a truck road or water drop" site on a lake or nearby ocean shore. The economics of helicopter logging are impacted by the timber value, flying distance, vertical relationship between the felling site and the drop area[2]. It has become of increasing importance on the coast as a means to access both environmentally more sensitive terrain and patches of higher-value, isolated timber. Helicopter logging can be cost effective in harvesting timber from benches and gullies. It is a preferred method to log single trees as part of variable retention harvesting.

Many makes and models of helicopter are available for "heli-logging" that have lifting capacities from 1600 to 12,000 kilograms and can lift single whole trees or "turns" (groups) of felled and bucked logs that do not exceed the helicopter' lifting capacity.

Helicopter logging labour requirements are a significant and high cost aspect of this harvesting method "...in addition to the aircraft itself, helicopter harvesting requires an extensive support crew and equipment that is not typically available to the average logger. Helicopter operations are labour-intensive, and the high cost can only be recovered by maximizing productivity and log value."[3] Most helicopter logging involves well-planned, intensive falling practices that can maximize log value with the helicopter's lifting capacity. Very heavy lift helicopters can lift the logs with the aid of a grapple but most coastal heli-logging utilizes ground choker-setting crews to hook the turns to the helicopter's long line for transport to the road or water drop zone. Including fallers, ground and pilot flight crews, flight engineers, landing personnel, camp cooks, etc, labour requirements for a seven-day week continuous two crew operation can be up to fifty men to support one helicopter. Stump to dump helicopter operations require service and fuel vehicles/facilities, small support helicopters, crew transport vehicles, front-end loaders on the landings for road drop sites or dozer boats for water drop sites.

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[2] Source: MacDonald 1999
[3] Source: Ibid

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Although helicopter logging is becoming a more common harvesting method on the coast, at present it represents only an estimated 5 to 10% of coastal SBFEP harvesting. Two examples of recent helicopter logging SBFEP timber sales are Greaves Island on the mid-coast and Kootenay Inlet in the Queen Charlotte Islands. SBFEP operators often have the opportunity to use helicopters where market timing and timber values warrant substituting heli-logging for cable logging. Combined heli-cable timber sales can be cost-effective and have been awarded under the SBFEP. Helicopter logging is often a phase operation that a SBFEP operator may contract out to an established heli-logging oufit. Because large helicopters can and need to harvest in excess of 200,000 m^3 per year, heli-logging operators provide services to many large and small SBFEP operators and licencees in any given year.

Cable Logging (or Grapple Yarding)

Coastal cable logging refers to those harvesting systems that employ large stationary or mobile units equipped with towers or cranes, cable winches and drums where the cables are used to yard the logs from the stump to the roadside landing area. The majority of cable systems in current use are referred to as grapple or swing yarders. Grapple yarders can progressively deck the logs along a road or yard the logs to spaced or fixed landing sites. Cable logging requires a well-defined road network.

Grapple yarders normally employ a two man crew while the less mobile hi-lead tower based system will employ a crew of four or five. Both systems are supported by a landing or roadside one or two person loading crew and a falling crew, the size of which depends on volume to be harvested, how fast the harvest is to proceed, terrain conditions and compactness of the harvesting area(s)fallers.

Cable logging with either towers or grapple/swing yarders is common throughout the coast and is in wide use by small, medium and large-scale SBFEP operators. Cable logging systems are likely used for 35 to 50% of the coastal small business harvest.

Feller-Buncher

Feller-buncher operations are a single phase operation that replaces hand-falling with machine mounted falling. They do not represent a full harvesting system. Feller-bunchers, are one form of ground-based mechanical falling equipment with a felling head that eliminates the need for a worker on the ground.

On the coast, areas where feller-bunches can operate are limited because a "...a large machine is required to carry the felling head to each tree... access is constrained by slope, terrain and soil strength,..."[4]. The most common feller-buncher used on the coast is an excavator mounted unit that can operate on up to 60° slopes. A feller-buncher requires only a single operator. The total labour requirements for a harvesting system using a feller-buncher in the falling phase would depend on the yarding or skidding method utilized.

Feller-buncher operations often support a hoe-chucking system. They are also associated with grapple-yarding cable systems and with many ground-based skidding systems.

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[4] Source: Ibid

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Feller-bunchers are likely used in less than 5% of coastal SBFEP harvesting. Mechanical falling is suitable for large, full-time contractors and unsuitable for smaller, part-time operators. This is particularly true for SBFEP operators who cannot be assured of steady access to sufficient timber volumes to warrant investment in such a capital intensive system. Typical areas for feller-buncher use would be in sales with smaller timber, second–growth stands. Southern Vancouver Island provides the best opportunity for employing this method.

Hoe-Chucking

Hoe-chucking refers to a yarding system where high ground clearance hydraulic log loaders are used as forwarders to move logs from the stump to roadside in advance of loading on a truck. The hoe-chucker moves the logs either individually or in small bunches one step at a time. Through a series of swinging moves the operator of the tracked excavator-like machine moves the logs progressively closer to the roadside.

Hoe-chucking is likely the most common harvest method in use by SBFEP operators of all sizes from small to large. The equipment used is readily available, requires moderate investment and is suited to more than one phase. A.J. MacDonald of FERIC writes that it "...is the most economical method of harvesting for gentle terrain in coastal conditions; for many operations, it has replaced the grapple yarder (cable system) as the preferred harvesting system. The labour costs are low because only one worker is required."[5]

The maximum side-slope[6] for effective use of a hoe-chucker is 25 to 35°. It is also a very effective harvesting method to be used in conjunction with a grapple yarder and/or other ground skidding methods. Hoe-chuckers can efficiently move log bunches felled by feller-bunches.

This system is probably employed in 40 to 60 % of SBFEP timber harvesting and is employed in all regions of the coastal SBFEP operating area.

Processing and Cut-to-Length Systems

Mechanical processing equipment requires a large capital investment and operating criteria that include gentle, even terrain, very productive skidding, adequate roadside processing area and smaller diameter timber. Considering the relative lack of SBFEP sales on the coast that present these conditions and are of sufficient assured volume to warrant the necessary investment, whole tree processing, mechanical de-limbing and cut-to-length systems are not in common use by SBFEP operators on the coast. Their use can only be supported by a very large operator or a dedicated mechanized process operator moving from area to area. Second growth stands would provide one of only a few timber types where the method could be employed. Mechanized processing is likely utilized on less than 2% of coastal SBFEP sales.

1.8 Site Selection

SBFEP staff in maintain a five-year plan for the program in their Forest District, which designates SBFEP chart areas. The plans are revised every two years so they are best described as rolling plans. The Chief Forester sets the volume apportionment for the SBFEP

[5] Source: Ibid
[6] Source: Ibid

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in each Timber Supply Area (TSA) every five years through the Timber Supply Review process. The aforementioned apportionment sets an annual maximum harvest based on a five-year average.

SBFEP staff use a mix of criteria to designate SBFEP chart areas and cut blocks, which include having a mixture of different types of harvest opportunities, attempting to avoid high grading situations, providing for some helicopter logging and partial cuts, avoiding environmentally sensitive areas, and dispersing cut blocks geographically.

To prepare a site for a sale, SBFEP staff must survey boundaries and possibly roads, ribbon out the boundaries, obtain a timber cruise, mark trees if there is to be a partial cut, undertake several assessments including terrain, stream and archaeological, and prepare a silviculture prescription.

The Ministry of Forests advertises bid sales and proposal opportunities and makes available detailed bid packages to interested registrants. After receiving a bid package, interested SBFEP registrants assess a site to determine the value of its timber and the likely cost of harvesting. Often they will walk an advertised site to verify the SBFEP's timber cruise and help estimate harvesting costs. If a SBFEP registrant has a financial backer or potential log buyer for the advertised timber, this person/company may visit the site too and assist with estimating timber value and harvesting costs.

1.9 Associated Businesses Providing Direct Inputs

By its nature, the SBFEP requires all small, medium and large scale operators to be efficient and flexible when determining the makeup of the labour and equipment resources they employ, whether it be owned or contracted to phase operators. A small harvesting operator will often contact out the falling, loading and trucking phases to other small operators. Small operators often work in co-operation with each other, providing equipment or labour associated with a single phase, including linking resources to bid on a timber sale. Very small operators who are involved in salvage, A-frame or hand logging on the coast will usually undertake all phases themselves.

Medium size operators will often only contract out the falling and booming phases. All medium sized operators are likely to contract out any helicopter work required.

Large operators engaged in the SBFEP often carry out all phases with their own labour and equipment resources. They will often have concurrent contracts with larger non-SBFEP licencees to support having sufficient resources to reduce the need to utilize phase contractors. However, it is not unusual for large operators to retain an on-going association with one or more phase operators, such as trucking or log sorting/booming contractors as they join to meet the demands of various timber sales. As with medium sized operators, large operators will usually contract with specialized companies for helicopter logging if required.

Falling companies – Timber falling is usually contracted out to individual fallers or falling companies, such as Vancouver-based GLM Falling.

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Trucking companies – Companies that are regular users of the SBFEP are usually smaller operations that prefer to maintain a minimum amount of capital. Logging truck services are usually contracted out to an owner-operator or a logging truck service company, such as Hawthornethwaite Logging Ltd.

Bargers and Boom Towers – Large barging companies that service the entire coastal small business and major licencee community include Rivtow, Sealink and Seaspan. In many areas of the coast, the isolated nature and limited timber sale volumes require SBFEP operators to form bags of bundled logs before towing them to common assembly points. Local small scale towing operators are often used in this phase. Examples of towing companies include Hart Towing and Pacific Towing.

2.0 RESOURCE REQUIREMENTS AND SENSITIVITIES

2.1 Provincial Crown Resources Required To Support SBFEP Timber Harvesting

Through the most recent Timber Supply Review, the Chief Forester awarded 10.7% of the Vancouver Forest Region BC apportionment to SBFEP tenures, approximately 20% lower than the province-wide SBFEP apportionment share. The following table shows the SBFEP apportionment for the Vancouver Forest Region and the province over the past three years.

Apportionment (m^3)	
	As of Mar 31, 2000
	As of Mar 31, 2001
	As of Mar 31, 2002
Vancouver Forest Region	
SBFEP	
	1,939,675
	1,939,675
	2,051,928
% of total	
	10.0
	10.2
	10.7
Total	
	19,293,802
	19,065,179
	19,218,956
BC	
SBFEP	
	9,030,814
	8,855,331
	9,359,701

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% of total	
	13.1
	12.9
	13.3
Total	
	69,022,259
	68,638,164
	70,551,139

Source: Ministry of Forests, Annual Reports 2001/2002, 2000/2001 and 1999/2000

2.2 Availability of New Crown Timber for SBFEP

Availability of new Crown timber is currently the topic of a major policy debate. Canadian and American negotiators see increasing the volume of wood being sold competitively in BC as a fundamental part of the solution to the softwood lumber dispute between Canada and the US.

The volume of wood allocated by the Ministry of Forests through BC Timber Sales is expected to increase, irrespective of the softwood lumber negotiations. Timber Sales comprise approximately 13 percent of the total provincial AAC – in the future, it could rise to as much as 25 percent (although this is not yet a firm number). BC's overall AAC is declining, however, and any new wood allocated to Timber Sales would be drawn from the major licencee allocation.

It is our understanding that a decision regarding BC Timber Sales allocation, and possible tenure reform, is expected early in 2003.

2.3 Potential Complementary/Conflicting Relationships with other Resource Values

Environmental Values

There is potential for SBFEP logging to (a) disturb or harm wildlife, particularly birds, through noise and human activity, and (b) modify fish and wildlife habitat and (c) reduce biodiversity.

Other Values

SBFEP logging can pose potential conflicts with a range of other resource users including: local residents (visual quality and noise); tourism operators and recreationists (visual quality, wilderness experience, conflict with logging road use, and reduction of animal and fish populations); non-timber forest product harvesters (limiting access to wild mushrooms, salal, and medicinal plants), and fishers and aquaculture operators.

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3.0 REGULATORY REGIME

3.1 Licences and Other Approvals Required

The SBFEP (BC Timber Sales program) is open to individuals 19 years of age or older, and to corporations in British Columbia that do not hold a major licence(s) with an allowable annual cut over 10,000 m^3.

The regulations governing eligibility for SBFEP sales are outlined in Section 20 of the *Forest Act*. Section 20 sales, also referred to as bonus bid sales, are awarded on the basis of highest offer to generate revenue. Sales are made available to category one (market loggers) and category two (small primary sawmills) program registrants. Section 21 sales are awarded on the basis of both price and a proposal.

In most sales, a Timber Sales licence provides the right to access and cut timber in a certain area. In certain circumstances, the licencee is awarded the right to access timber, but must also apply for cutting authority (or a cutting permit) in this area. This arises when the geography or opportunities in a block are diverse. For example, a timber licence may cover several blocks where different stumpage rates apply, or that require different harvesting systems – e.g., helicopter in one area, and skidder logging in another. In other cases, the licence may cover different appraisal zones, requiring different calculations of stumpage. The licencee will need to apply for different cutting permits within a block.

Once harvesting operations are under way, the licencee is required to adhere to laws and regulations of several government agencies governing the use of Crown lands. The principal ones include the following.

Provincial:

- **Forest Practices Code**: It is the legal responsibility of the contractor to learn the code, and to apply its guidelines for harvesting.
- A **Special Use Permit** will be required where semi-permanent infrastructure related to harvesting activity must be installed – e.g., log sort yard and logging camp. The Ministry of Forests determines whether the infrastructure is compatible with harvesting.
- A **Licence of Occupation** from Lands and Water BC is required if the contractor is hauling logs into or out of water.
- The **Workers' Compensation Board of British Columbia (WCB)** administers the *Workers Compensation Act* under the BC Ministry of Skills Development and Labour. The *Act* gives the WCB legal authority to:
  - set and enforce occupational health and safety standards;
  - assist injured or disabled workers and their dependants; and,
  - assess employers and collect money to operate the WCB.

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Federal:

- ***Federal Fisheries Act*** – If harvesting or camps are located in close proximity to stream or a waterway, they will be subject to the fisheries act, under the Department of Fisheries and Oceans (DFO). The *Fisheries Act* is designed to protect fish habitat.

3.2 Process of Securing Approvals

The registration fee to bid on Timber Sales is $250.00 for a two-year period. Once registered in the program, registrants can bid on timber anywhere in the province.

Section 20 timber sales are advertised for two to four weeks; once bids are in, the licence is awarded within a few days.

Section 21 timber sales are a longer process, because of the complexity of the decision-making process. The volumes are also larger. Advertising may last for up to eight weeks, and the subsequent decision making period extends from 30 days to one year. Sign-off by either the minister or deputy minister is also required. On average, the entire process lasts for one to six months. It is likely that the decision-making criteria will be modified as part of creating the new BC Timber Sales initiative.

Generally, cutting permits are issued at the time of the Timber Sale licence. In instances where one licence covers more than one cut block (and the blocks are not contiguous), the cutting permits will be issued at the time the licence is obtained, if the blocks are ready for harvest. If not, issuance of the cutting permit will be delayed until the block(s) is ready to be harvested.

The Ministry of Forests recommends that District Managers require an initial deposit of $5,000 for timber sale licences under Section 21 of the *Forest Act*. The final deposit for these timber sale licences are calculated in accordance with Section 7(1) of the Advertising Deposits and Disposition Regulation.

It may take up to 140 days to obtain a Licence of Occupation for foreshore water use through Land and Water BC Inc., depending on whether a Designated Use Area is in place, and the speed of the referral process.

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4.0 INVESTMENT AND COST

4.1 Start-up and Ongoing Costs for SBFEP Logging Operations

The following examples of small, medium and large-scale SBFEP operations are presented as ballpark estimates[7] of some typical operations that one could expect to find within the coastal SBFEP. The nature of the coastal SBFEP does not generally offer the security of operations necessary to permit small and medium sized operators to invest in new equipment. Even with large operators much of the equipment will be used.

Few contract loggers access the SBFEP as the Section 20 and 21 sales are awarded on the basis of highest bonus bid. Palmer Bay Logging is an example of a contract logger that access the SBFEP. Contract loggers have a well established industry association, Truck Loggers Association. The small and medium scale logging operations that access the SBFEP do not have an industry association.

- Small Scale Operations
  - Annual harvest volume: 1,000 to 8,000 m^3
  - Harvest Systems: Hoe-chucking, ground skidding, cable systems
  - Equipment: Excavator type loader-forwarder, pick-up/shop truck
  - Capital Investment: Used equipment – $75,000 to $150,000
  - Labour requirement: 1 owner/operator, phase contract faller
  - Annual operating costs[8]: $65/$m^3$ = $65,000 to $520,000
  - Annual log sales: $125,000 to $1,000,000
  - Targeted buyer: Local consumption, portable mill or log broker
  - Years to recoup capital investment: one to five years, depending on average per cubic metre value of logs in sale
  - Comments: These operators often combine resources with other SBFEP operators and often move in and out of the program.
- Medium Scale Operations
  - Annual harvest volume: 5,000 to 20,000 m^3
  - Harvest Systems: Cable, hoe chucking
  - Equipment: Grapple yarder, excavator type hoe chucker, Front-end loader, pick-ups, maintenance vehicle, log truck
  - Capital Investment: $ 500,000 to $1,000,000
  - Labour requirement: 5 to 10 person crew
  - Annual operating costs[9]: $58.00/$m^3$ = $290,000 to $1,160,000
  - Annual log sales: $625,000 to $2,500,000

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[7] Annual operating costs are estimated from MOF Coastal Appraisal Manual cost allowances for typical coastal operations. They exclude any allowances for silviculture, road building and towing or barging. Log sales are based on the premise that the operator is the successful SBFEP sale recipient and therefore his revenue is based on the sales value of his production. An average value of $125 per m^3 was used in these examples. It should not be assumed to be a correct or sustained value. Without specific species and log grade information it is not possible to estimate more closely the annual sales for any sized operator. These values can and often do change rapidly within the term of any particular sale.

[8] Source: Coastal Appraisal Manual; tree to truck cost - $20/$m^3$; hauling (based on four km haul distance) - $4/$m^3$; dump, sort, boom and scale - $9/$m^3$; road maintenance - $2.35/$m^3$; overhead - $7.90/$m^3$; crew transportation - $1.85/$m^3$; logging camp (assumes accessible camp) - $12.14/$m^3$; add-on factor for small scale operations - $7.38/$m^3$

[9] Source: Ibid; does not include the small scale operation add-on factor of $7.38/$m^3$

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- Targeted buyer: Major licencee, log broker, value-added manufacturer
- Years to recoup capital investment: three to seven years
- Comments: Medium sized operators will often bid on more than one sale in year. They will often contract out sorting and booming and have the assistance of a log broker prior to and during the sale.

- Large Scale Operations
  - Annual harvest volume: 20,000 to 50,000 or more m^3
  - Harvest Systems: Cable, hoe chucking, helicopter
  - Equipment: Grapple yarder, 2 excavator type hoe chuckers, dedicated log loader, multiple log trucks, boom boats, pick-ups, support vehicles, access to camp facilities
  - Capital Investment: $1,500,000 to $2,500,000 (contracted heli-logging)
  - Labour requirement: 10 to 30, dependent upon phases included
  - Annual operating costs[10]: At $\$63.00/m^3$ = $1,260,000 to $3,150,000, assumes 10% heli-logging
  - Annual log sales: $2,500,000 to $6,250,000
  - Targeted buyer: Manufacturer direct, log broker, major licencee, log export market
  - Years to recoup capital investment: three to ten years
  - Comments: Typical operators are often full phase stump to dump operators who can combine long-term contracts with SBFEP operations. They often have access to sufficient volume to justify newer and more varied equipment. Investment in helicopters and supporting equipment can range up to $15,000 per machine.

4.2 Financing of SBFEP Bids

Larger scale harvesting operators will finance their own bids through conventional channels. Small and medium-scale operators often strike business arrangements with log brokers/ traders and large timber processing mills to finance their bids and/or harvesting costs. There are a wide variety of business arrangements. They range at one extreme from "surrogate bidding" whereby a registrant signs bid documents and the awarded licence but has little or nothing to with other parts of the sale to a log broker assisting in valuing the timber and estimating financial feasibility of a sale in exchange for first offer purchase rights. Neither the Forest nor its regulation prohibits these arrangements. MOF frowns upon "surrogate bidding" and use to include contract language with requirements that inhibited the activity but no longer does so.

[10] Source: Ibid; assumes 10% of harvest is undertaken using helicopter logging, $\$70/m^3$ rather than the $\$20/m^3$ tree to truck cost

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5.0 KEY INFRASTRUCTURE REQUIREMENTS

5.1 Logging Roads

Historically, logging roads required to access SBFEP timber, are most frequently provided by Ministry of Forests through a separate contract process. However, there appears to be a trend towards including more roads within the parameters of the timber sales. Main roads may exist from past or current timber development by tenured licencees or they may be constructed by road contractors who need not be SBFEP registrants. These main or forest service roads often access SBFEP timber that is harvested by more than one operator over a period of roads as required by approved forest development plans. MOF will normally retain the responsibility to build bridges, major drainage structures and environmentally sensitive roads. Many SBFEP mid- to large-scale logging operators are also involved in road building contracts as a means to maximize equipment and labour utilization.

5.2 Log Sorting and Booming

SBFEP operators normally access dry land sorts and booming grounds built and operated by major non-SBFEP licencees or log brokerage companies. In different parts of the coast, MOF has established dump sites and/or dryland sorts at or near SBFEP operating areas. Examples of these SBFEP facilities are located in the Queen Charlotte Islands and at Bella Coola on the mid-Coast. Often these SBFEP facilities are operated by a SBFEP registrant who may provide a service to other operators. These sort/boom operators may or may not have log marketing agreements with an associated log broker.

Many SBFEP operating areas are located within or adjacent to established and well-roaded operating areas of major and/or long-term licencees. If the SBFEP operator processes his log production through a sort/booming facility established by a major licencee or log broker (as a buying station), the sorting scaling and booming phases will be done on a per cubic metre basis. Often the facility use agreement will be contingent on the facility owner having an opportunity to purchase or market the log production.

Some larger size SBFEP timber sales and those isolated sales in newly developed areas may make it necessary and/or cost effective to establish a new, specific sale oriented sort and/or booming facility. In many cases the volume harvested by a coastal SPFEP operator is not sorted at the timber sale location, but is instead dumped in the water, unsorted, and towed by boom or barge to a large centralized water sorting facility located nearer to a manufacturing facility.

5.3 Logging Camps

A few coastal contract loggers will access SBFEP sales to better utilize their equipment and crews and take advantage of advantageous market prices. They will have float or land-based camps to facilitate their harvesting for major licencees. Major licencees also have float or land-based camps to facilitate the harvesting of their own crews and contractors and will rent lodging to SBFEP operators on a daily basis.

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Small and medium scale logging operations will pay a daily fee of $75-85 to owners of logging camps for accommodation and meals to house their forest workers while on a SBFEP job. They will not own a logging camp because of the high investment and operating cost.

Regulation of logging camps is diffuse so some small-scale operations take advantage of this situation and establish temporary camps, possibly consisting of a recreational trailer or two. These temporary camps are unregulated and illegal.

5.4 Water Transport

Water transport is generally provided to the SBFEP operator by dedicated towing and/or barging companies. Depending on the location and size of the timber sale, the operator may have sufficient volume to efficiently utilize more expensive barging services. Often a log broker will arrange barging of logs from a number of operators to reduce costs. Production from dry land sorts is boomed and towed or barged by log sort, while unsorted production is barged or towed to central sorting facilities close to a variety of manufacturing customers. Barging is a necessary phase for timber sales in the Queen Charlottes and the west coast of Vancouver Island. Towing of bundle booms is common on the mid and south coast as well as from the east coast of Vancouver Island.

5.5 Tree Planting

SBFEP harvesting operators are not normally involved in post harvest planting. Under the current system, the Ministry of Forests is responsible for planting. The ministry usually combines blocks from one or more sales in a planting package that is then put up for bid by qualified planting/silviculture contractors. It determines the species and planting standards to be met. The trend is to group areas to accommodate larger planting contracts that support enhanced quality, reduced supervision requirements and lower costs. Small business registrants would not be excluded from bidding, but registration under the SBFEP is not required for related planting contracts.

5.6 Labour

Most small to medium size SBFEP operators use their own local non-union labour force. These operators may employ a labour force of one to twenty or more depending on volume, term and phases involved. A common practice within the SBFEP is for multiple operators to combine their one to two or three person owner-operator phase businesses to provide the necessary equipment and labour resources necessary to harvest and deliver the timber. Labour is generally hired for the season or for work related to a specific sale. Many workers return to a single or short list of operators depending upon available work. The SBFEP workforce has had to be increasingly mobile within the coast and within coastal regions such as the Queen Charlottes, the mid-Coast or Vancouver Island. Both inside and outside of joint ventures, many small- to large-scale SBFEP operators employ First Nations members in their harvesting operations on the coast.

Many large-scale SBFEP operators have crews that are IWA union represented. These crews often work for the operator on his contracts with major non-SBFEP licencees. Large-scale operators can have a harvesting related workforce of 50 or more workers. Increasingly, both

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union and non-union companies engaged in the SBFEP operate both within and outside of the SBFEP in order to more fully utilize their equipment and labour resources. Most helicopter logging crews are unionized and stay with a single helicopter logging company and helicopter crew from season to season.

6.0 MARKET

6.1 Market for Category 1 and 2 Bidders

The average annual coastal SBFEP log harvest is approximately 1.7 million m^3, which is 18% of the province-wide SBFEP harvest and 2.2% of the total provincial harvest. Reflecting the poor log markets on the BC coast, the coastal SBFEP harvest dropped off by more than a third for the year ending March 31, 2002.

Volume of all Products Billed ('000 m^3) in fiscal 2001/2002, 2001/2000 and 2000/1999[1]

Land Status	2001/2002 2001/2000 2000/1999 3-year average
Coastal SBFEP Section 20	
	619
	1,157
	1,038
	938
Coastal SBFEP Section 21	
	410
	654
	679
	581
Coastal SBFEP other	
	239
	201
	99
	180
Coastal SBFEP total	
	1,269
	2,012
	1,816
	1,699

[1] SBFEP volume billed is used as a proxy for harvest volume. Harvest billed excludes two categories of harvest volumes: volume harvested but not scaled, and volume scaled but not billed. Over an entire year this represents a relatively small part of the total volume harvested, and the unscaled/unbilled volume that exists at the end of the year is balanced by such volume from the previous year that is billed at the beginning of the year (personal communication - G. Archdeakin, Ministry of Forests).

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BC SBFEP total	
	8,581
	10,273
	10,208
	9,687
Coastal SBFEP share of BC SBFEP total (%)	
	14.8
	19.6
	17.8
	17.5
BC total	
	69,762
	77,429
	79,722
	75,638
Coastal SBFEP share of BC total (%)	
	1.8
	2.6
	2.3
	2.2

Source: Ministry of Forests, Annual Reports 2001/2002, 2000/2001 and 1999/2000

The SBFEP apportionment comprises 10.7% of the Vancouver Forest Region apportionment. The coastal SBFEP harvest is currently about 10% of the total coastal Crown land harvest. Approximately 55% of the SBFEP harvest is undertaken by Category 1 (market loggers/contract harvesters) bidders, and 33% to Category 2 (sawmill owners and remanufacturers).

The contract and market harvesting industry is poorly documented, despite its relative importance in the BC forest industry. In 1997, Price Waterhouse estimated that contractor logging amounted to 83 percent of the provincial cut[12]. Moreover, a study carried out in 1998 to quantify the number of contract loggers in BC, and their productivity, calculated that there were approximately 2,400 contract harvesters in BC, with 37 percent of them based on the BC coast[13]. Since that time, BC's harvesting sector has lost at least 7,400 workers, and it is reasonable to expect that the number of contract workers has declined, too.

Category 1 (market loggers) bidders purchase timber to sell to end users. Most of this timber is sold to the major forest licencees, and the rest sold into the log market via log brokers, or to local sawmillers (e.g., shingle mills) or value-added operations.

Category 1 bidders often "pre-sell" their allocation prior to submitting a bid, that is, they secure a buyer for the timber, thereby establishing a loose partnership, in the event that their bid is successful. This provides the necessary start up capital for smaller operators. Larger bidders better equipped to handle up-front costs may not need to pre-sell their timber.

[12] Source: Price Waterhouse 1997
[13] Source: Resource Systems Management International Inc 1998

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Those who do not sell their timber to a major licencee can sell in the Vancouver Log market through log brokers who generally manage the dry land sorts where the timber is sorted for shipment. The logs are then put into the water, joined with a boom, and then transported to the buyer(s), or de-watered and re-sorted at another destination prior to shipping to a buyer(s).

There is a threshold volume at which it feasible to sell logs through a broker. The more remote a logging operation is, the greater the cost of transporting logs to market by water, thus a greater quantity will be needed to elicit buyer interest. One Vancouver-based broker indicates that he will not accept less than 5,000 m^3 if they need to be transported by water (although others will). Those with smaller quantities often choose to sell to local major licencees.

At Vancouver Island locations, many transactions occur between loggers and sawmills because of the well-established transportation system and relatively short distances.

Category 2 (sawmill owners and remanufacturers) encompass a wide spectrum of wood products and markets, ranging from commodity lumber to specialty value-added products such as door frames, mouldings, log homes, fence panels, flooring, etc.

Category 2 registrants bid for SBFEP with the primary objective of obtaining fibre for their operations. Depending on quality and species, the bidder will process some of the timber it harvests, and trade the rest to obtain the wood it needs for its own operation. For example, a manufacturer of fence panels in the Lower Mainland requires cedar logs of a certain size. The company bids on SBFEP wood, uses what it cans, and trades the rest, making up the price difference with cash.

The market for wood products is diverse, and complex, and no data is publicly available that reflects the movement of timber to sawmills and other remanufacturing operations on the Coast. Clearly the markets for commodity products (lumber, pulp) will drive demand for inputs such as logs or woodchips and residue. The niche markets for value-added products (which constitutes a small proportion of BC forestry exports) is largely independent of those for commodities, and pricing is generally more stable.

6.2 Factors Affecting Exports

Increasing protectionism in the US and a slump in Japanese demand for BC wood products are both major barriers to BC forest exports. The US re-imposed its countervailing duty (19.3 percent) on Canadian softwood lumber imports, and added a 13% anti-dumping duty, in August and October 2002 respectively. The European market has also restricted its imports of Canadian lumber.

Traditionally, Japan has been a major market for western hemlock, a major coastal product. Revisions to Japanese building codes in 2000 has led Japan builders to substitute away from BC's "green" hemlock in favour of kiln-dried lumber from the Norscan[14] producers and elsewhere.

[14] Norway and the Scandinavian countries

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Provincial and federal governments are impeding the market for certain intermediate forest products. For example, the BC government restricts the sale of raw logs and pulp chips outside the province without special permits.

The provincial market for logs and chips has evolved to meet a diverse range of needs throughout coastal BC. During the past five years, approximately 23% of the logs cut on the coast have been traded in the Vancouver Log Market[15]. There are now concerns, however, that the log market is becoming too small, and dominated by a smaller number of buyers and sellers.

Coastal BC is regarded as a high-cost producer of commodity wood and pulp and paper products. Its position is worsening as more low-cost producers emerge in countries such as Indonesia, Russia, and New Zealand.

Manufacturers of specialty, value-added products do not compete on the basis of price, but instead sell into specific niche markets based on their technical or quality merits.

6.3 Log Exports

SBFEP timber is treated the same as timber from other BC Government tenures under *Forest Act* log export rules. A SBFEP licence holder can apply to the appropriate Forest Region Manager who advertises the export proposal to assess if it meets the harvesting surplus criteria of the *Forest Act*. Domestic mills can make an offer for the advertised timber, and the offers are evaluated by the Timber Export Advisory Committee. If the committee decides that the offer is fair, i.e. reflective of domestic value, then the application for export is rejected. If there is no offer then the BC Government will declare the advertised timber to be surplus and exportable. MOF will not accept applications for export of cedar or cypress logs and will only accept applications for H Grade or lower logs.

7.0 GOVERNMENT REVENUES

7.1 Provincial

- Stumpage: Total stumpage paid by winning registrants is equal to upset price plus bonus bid. MOF uses a formula based on market price to determine upset prices.
- BC Logging Tax: Companies and proprietors that harvest timber in British Columbia must pay the BC Logging Tax.
  - This tax is levied at a rate of 10% on the net income from logging operations.
  - Net income is determined is generally gross revenue from logging operations less related operating expenses.
  - This tax is fully deductible from federal and provincial income tax payable; it is treated as a cost item.

[15] Source: Pearse November 2001

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- Employee Income Tax: Based on the average pre-tax earnings level for contract harvesters ($45,000)[16] a total of 8.3% is collected in provincial personal income taxes.
- Corporate Income Tax: 13.5% of taxable corporate income.
- PST on purchases: The provincial sales tax is 7.5%, and would be charged on purchases made by the contractors. No PST is charged on purchases of timber.

7.2 Federal

- Employee Income Tax: Federal personal income tax is typically 2/3 of the total personal income tax collected.
- Corporate Income Tax: 26.12 % of taxable corporate income.
- GST is 7.0% and is charged on all goods and services purchased by the contractors.

8.0 EMPLOYMENT ESTIMATE

Using the contract harvesting coefficient[17], a preliminary estimate of direct jobs and earnings arising annually from harvesting SBFEP timber on the BC Coast was calculated and is shown below:

- Coastal BC SBFEP annual harvest (based on three-year average) – 1.7 million cubic metres[18]
- Total direct harvesting jobs (FTEs) – 425 Person Years, assuming a labour coefficient of .25 PY per 1,000 m^3
- Total pre-tax direct income – $19.13 million, assuming annualized pre-tax earnings of $45,000

In contrast with the general Ministry of Finance coefficients[19], these are focused entirely on forest floor activities – felling trees and forwarding them within the harvest site to where they are assembled for subsequent ground or water transportation to processing facilities. In light of this, it is reasonable to expect the coefficients to be of a smaller magnitude than those of the Ministry of Finance, which cover additional occupations. The coastal contract harvesting coefficient (for forest floor activities only) for the BC Coast is estimated to be .25 direct jobs per 1,000 m^3[20].

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[16] Resource Systems Management International Inc. October 1998. CPI is used to scale from 1998 to 2001 value.
[17] Specific labour coefficients for contract harvesters were developed in a study carried out in 1998 by Resource Systems Management International Inc., *The Contract Harvesting Industry in British Columbia*. Its data was obtained from a comprehensive telephone survey of Coast and Interior contract loggers done in 1997/98.
[18] Includes Section 20, 21 and Other. Source: Ministry of Forests, October 2002.
[19] The Ministry of Finance has developed labour coefficients are useful in calculating direct economic effects on a regional basis in the absence of more specific information. These are described in Appendix II. There are a few reasons that they may not accurately estimate employment in the contract logging sector: the coefficients are based on data at least 10 years old – productivity, and the pattern of fibre and non-fibre purchases, are likely to have changed since this data was made public; and,
the logging coefficient covers the operations of both major licencees and smaller contractors, and a range of occupations including those that are transportation-related (trucking, barging, marine towing).
[20] The coefficient for the Vancouver Region from the 1998 Resource Systems Management International Inc.

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It should be noted that the 425 Person Years of employment in contract harvesting translates into a larger number of *jobs*, given the seasonality of employment in this sector. If the average season is only six months, this would mean that approximately 850 actual jobs are generated over the course of a year. Note that this estimate excludes employment or earnings related to trucking or marine transportation, or at the sawmill or remanufacturing operation. There is insufficient public information to calculate these impacts.

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Economic Development Branch

APPENDIX I – TRANSFORMATION OF SBFEP INTO BC TIMBER SALES

Transition

In June 2001, the Ministry of Forests started a process to revamp the Small Business Forest Enterprise Program, with an emphasis on placing the program on a more commercial footing. The new initiative, currently called BC Timber Sales, will replace the SBFEP, and full implementation of the new program is scheduled for April 2003.

The transformation work is comprehensive and includes policy development, new business practices, organization and structure changes, a new management framework, streamlined and clarified program objectives, and a more independent financial and accountability structure.

BC Timber Sales

The legal name of the small business program is still the Small Business Forest Enterprise Program (SBFEP). As part of the transformation process, the SBFEP has been 're-branded' as BC Timber Sales. The SBFEP name will continue to be used in a legal context until legislation is introduced to change it.

To achieve the goals of increased effectiveness and being more commercial, Ministry of Forests will move its small business activities to a new, independent organization within the ministry, which will be separate from the field services organization. A parallel example is the ministry's Protection Services Branch. The program has three major policy objectives:

- To provide a credible reference point for costs and pricing of timber harvested from public land in B.C.
- To generate the best possible revenue return to the province, recognizing objective # 1.
- To provide opportunities for customers to purchase timber in an open and competitive market.

BC Timber Sales will not focus on the social objectives of the SBFEP. Rather, the core business of the new program will be to generate the best possible financial return to the Crown from publicly-owned timber, providing opportunities for customers and setting a credible reference point for the price and cost of timber harvested from crown land.

BC Timber Sales Offices

Twelve Timber Sales Office (TSO) will be the main operational locations for the new program and co-located in several Forest District offices. TSOs will provide administration, management and some aspects of planning for BC Timber Sales. Other aspects of planning will be carried out in a Victoria headquarters operation. A BC Timber Sales business area is defined as the geographic area managed by a Timber Sales Office. There will be 12 business areas.

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BC Timber Sales Apportionment

As of the October 2002 preparation of this Building Block, the BC Government is considering changes to the current AAC apportionment as part of a comprehensive policy shift. A possible outcome of this work may be more volume available for auctions in the province. The new program is being developed with sufficient flexibility so that it will be able accommodate an increase in volume, as required. At this juncture, it is not certain that BC Timber Sales will have a larger apportionment than the current SBFEP apportionment or the timing of any increase.

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APPENDIX II – MINISTRY OF FINANCE LABOUR COEFFICIENTS AND MULTIPLIERS

The BC Ministry of Finance has developed general industry labour coefficients and multipliers for the forest sector, and these are commonly used to calculate direct, indirect and induced employment and income effects related to harvests change on the Coast and in the Interior[21].

The estimates are based on industry data between 1989 and 1993. The Ministry of Forest's coastal labour coefficients (average for 1989 to 1993) are as follows:

- Logging – 0.45 direct jobs per 1,000 m^3 of fibre harvested
- Lumber/sawmills – 0.62 direct jobs per 1,000 m^3 of fibre processed
- Pulp – 0.39 direct jobs per 1,000 m^3 of fibre processed
- Plywood – 0.97 direct jobs per 1,000 m^3 of fibre processed

Corresponding employment and income multipliers from the Ministry of Finance are as follows.

BC Ministry of Finance Employment and Income Ratios for BC Coast[22]

Ratio	Sector		
	Logging	Lumber	Pulp
Employment Ratio	2.02	2.31	2.54
Wage Ratio	1.58	2.08	2.05

The data in the table indicates that each job in the logging sector creates 1.02 additional jobs (indirect and induced); each dollar earned in this sector generates .58 dollars in indirect and induced jobs.

[21] Horne, G., Riley, D., Ransom, L. and Kosempel, S. February 1996. *A Provincial Impact Estimation Procedure for the British Columbia Forest Sector.* Analysis and Evaluation Branch, Ministry of Finance and Corporate Relations.
[22] Source: Ibid.

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